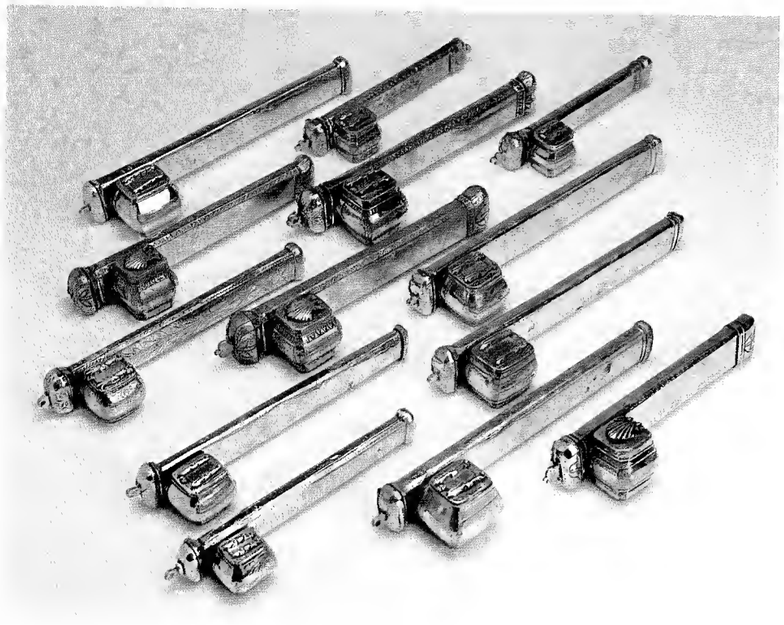

Muhtelif pirinç divitler. (Kayaoğlu koleksiyonu.)

Ottoman Nautical Charting and Miniature Painting: Technology and Aesthetics

Dimitris Loupis

Secrecy

Nautical charts used to be a significant Mediterranean concern in their early period (13^{th}–16^{th} century). Their technology was developed through the communication of the people of the Mediterranean, that encircled body of water that determined the communication rather than the isolation of the people living around it. Nautical charts and atlases, as the most developed and exact version in the depiction of an area, used to be the pilot in the trade ships' route, the *Theater of the World* (Teatrum Orbis Terrarum) for those who wanted to broaden the titles of their crown.[1] But these charts were also the systematized picture of human expansion in the already known, but also in the unexplored lands, a picture that was of great learned interest.

The medieval cartography of *mappamundi* that involved round maps of the so called T-O type, was of great religious character both in the Christian, as well as in the Islamic Mediterranean. In these charts water and land were depicted in a simplified form placing in the center of the world the one and only Jerusalem, Rome, Mecca or Cairo. Nevertheless, Renaissance people were not satisfied with the

[1] Compare the title "*Lord of the Navigation, Conquest and Commerce of Ethiopia, Arabia, Persia and India*" of the Portuguese king Manuel the Fortunate (1495-1521) to that of the Ottoman Sultans from the early 15^{th} century: "*Ḫ nü'l-Baḥreyn Sulṭānü'l-Berreyn—Lord of the Seas and Lands*."

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mappamundi maps, as portolan charts gave a more realistie version of the world. These charts were the fruit of the know-how and the observation on the spot of sailors, that acquired many skills at the cost of much pain. Thus, they were of great value and in some places they were a state secret.

In 1508 the king of Spain established the so called *Casa de la Contratación* (or *Casa para la Contratación y Negociación de las Indias*)[2] in Seville, a public service that dealt with diseovery missions, eolonies and the trade with them. The hydrographic workshop installed in the *Casa* was enveloped in absolute mystery, while any possible leak of eharting material towards foreign powers was prevented at all costs. The ehart as a secret (*sigilo*)[3] follows all ships to their journeys. Spaniards named it *padrón real*. In turn, the kingdom of Portugal established an analogous service, *Casa da India*[4] in Lisbon. Charts that were produced there, were named *padrão real*. One of the reasons of the few remaining samples of early nautical charting from Spain and Portugal is the scerecy and the severe protection they were enveloped in.

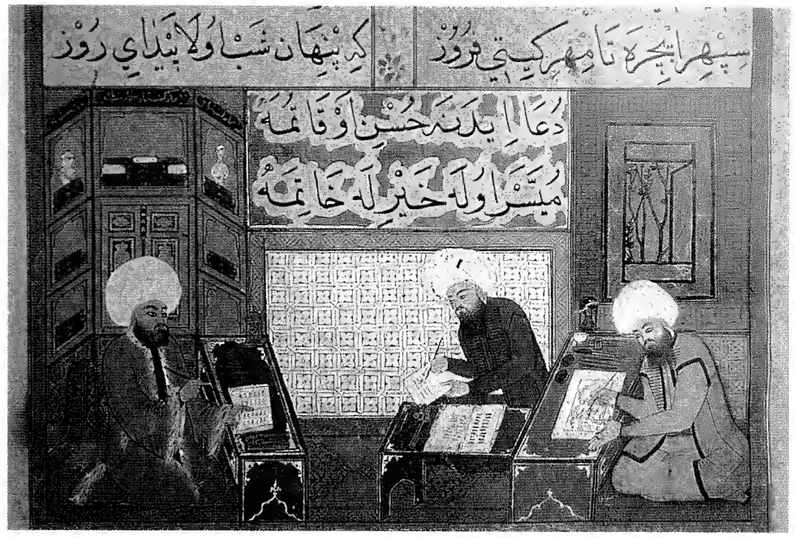
Commercialization

Charts that were produced in the map workshops of the Italian cities came as result of humanitarian and Renaissance sciences. Florentines, Venetians and Genoese had mainly a learned and commercial interest in them. Nautical charts (sing. *portolano, carta de navigar, compasso*) became indispensable to navigation, mostly when journeys did not follow the coastline. Nautical charts were reproduced to meet the needs of

[2] José Pulido Rubio, *El Piloto Mayor de la Casa de la Contratación de Sevilla: pilotos mayores, catedráticos de Cosmografía y cosmógrafos* (Sevilla: Escuela de Estudios Hispanoamericanos, 1950); Germán Latorre, *Diego Ribero, Cosmógrafo e Cartógrafo de la Casa de la Contratación de Sevilla* (Sevilla: [Tip. Zarzuela], 1919), and Marcel Destombes, "Un astrolabe nautique de la Casa de Contratacion (Seville 1563)." *Revue d'Histoire des Sciences* 22 (1969): 33–64.

[3] For maps treated as state secrets in Portugal see Luís de Albuquerque, "Ainda o 'Segredo de Estado'." In *Dúvidas e Certezas na História dos Descobrimentos Portugueses*, vol. I. (Lisboa: Vega, 1990), 57–66; Jaime Cortesão, *A Política de Sigilo nos Descobrimentos nos Tempos do Infante D. Henrique e de D. João II* (Lisboa: CCVCMIDH, 1960), and Duarte Leite, "O Sigilo." In *História dos Descobrimentos. Colectânea de Esparsos,* ed. V. Magalhães Godinho, vol. I, (Lisboa: Cosmos, 1959), 411-449.

[4] Luís de Albuquerque, *Um exemplo de "cartas de serviços" da India* (Coimbra: Centro de Estudos de Cartografia Antiga, 1979); Luís de Albuquerque and José Pereira da Costa. "Cartas de 'Serviços' da India: 1500-1550." *Mare Liberum* 1 (1990): 309–96.



The chronicler Ṣubḥī Çelebi dictates his text to a scribe and a miniaturist called Ḥasan, who illustrates a scene in the surrender of the fortress of Eger from Sultan Meḥemmed III's Hungarian campaign in 1003-5/1594-6. In Ṣubḥī Çelebi, *Şāhnāme-i Sulṭān Meḥemmed*, ca. 1004–9/1595–1600. Topkapı Sarayı Müzesi Kütüphanesi, İstanbul (Hazine 1609, f. 74a).

numerous commercial and war ships, but also the scholars' thirst for geographic knowledge, the noble and bourgeois collectors' passion for knowledge and aesthetic enjoyment. These charts were also an excellent present for sovereigns. That way, geographical depiction met various and increased needs. Nautical charts were commercialized. Many individual cartographers as well commercial workshops appeared offering a significantly augmented production of manuscripts and printed charts. Since the middle of the 16th century, the centers of printed maps, Antwerp and Amsterdam, undertook the meeting of the increased demand of the great colonial trade companies, that is *Vereenigde Oost Indische Compagnie* (United East India Company) and *West Indische Compagnie* (West India Company).[5] The production, not only of printed nautical

[5] Kees Zandvliet, *Mapping for money : maps, plans and topographic paintings and their role in Dutch overseas expansion during the 16th and 17th centuries* (Amsterdam: De Bataafsche Leeuw, 1998); Dirk de Vries, *Uit de kaartenwinkel van de VOC: catalogus van zeekaarten van de Vereenigde Oostindische Compagnie in de Collectie Bodel Nijenhuis* (Alphen aan den Rijn: Canaletto, 1996); J. van Bracht, *Atlas van kaarten en aanzichten van de VOC en WIC, genoemd Vingboons-atlas, in het Algemeen Rijksarchief te 's-Gravenhage, Vingboons atlas* (Bussum: Fibula-Van Dishoeck, 1981), and Michel

charts, but also of modern atlases in many languages, aimed at meeting the cartographic needs worldwide, which was consistently fulfilled.[6]

The Map Workshop

Florence, where the Ferrara Council was transferred (1438–42), was one of the centers of humanistic geography. This especially fruitful city managed to imbibe the classical Greek culture, which had been carried to the West through the Arabic culture for years and was now carried there by the Byzantine scholars.[7] People's love for geography led to a significant demand of charts and gave birth to numerous workshops in Rome firstly and Venice afterwards. The Mediterranean map workshop flourished in the Italian peninsula, mainly in Venice—"La Serenissima," the Ruler of the Mediterranean Sea.[8] The copying tradition of the monasteries, mainly that of the independent copying workshops (*scriptoria*) was adapted to the increasing demand of geographical and cartographical works. Those who crossed the Mediterranean and the Black Seas were in need of handbooks that could facilitate their journey. That way, a captain that sailed from Venice used to consult a handbook with nautical instructions (portolan text) and a nautical chart (portolan chart)[9] for safe navigation. On the other hand, that captain as merchant used to consult a handbook with geographical and commercial information (on products, currency, weights and measures, questions of

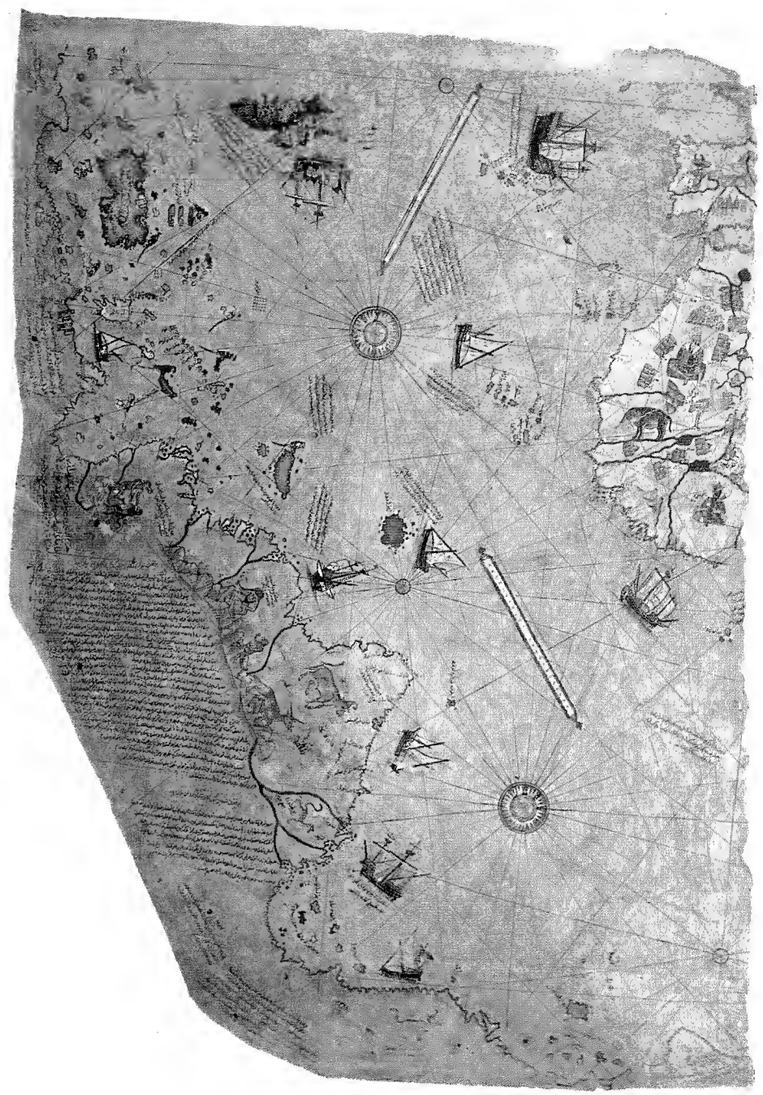
Mollat du Jourdin and Monique de la Roncière, *Les portulans: Cartes marines du XIIIe au XVIIe siècle*, (Fribourg: Office du Livre, 1984), 31–3. English edition, *Sea Charts of the Early Explorers: 13th to 17th Century*, (New York: Thames and Hudson, 1984).

[6] For the transference of the center of cartography from the Mediterranean Sea to the *New Expanded World*, see W.G.L. Randles, "De la Carte-Portulan Méditerranéenne à la Carte Marine du Monde des Grandes Découvertes: La Crise de la Cartographie au XVI Siècle." In *Géographie du Monde au Moyen Age et à la Renaissance*, ed. Monique Pelletier, (Paris: Comité des Travaux Historiques et Scientifiques, 1989), 125–31.

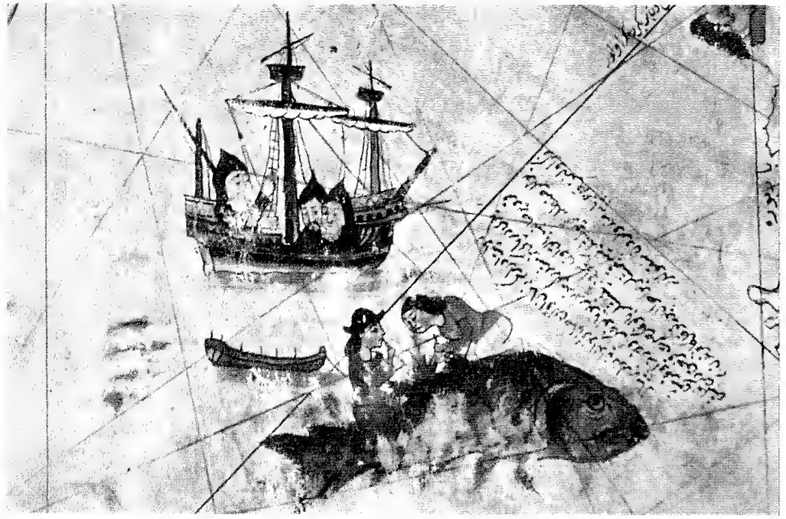
[7] See Th. Goldstein, "Geography in Fifteenth Century Florence." In *Merchants and Scholars, essays in the history of exploration and trade, collected in memory of James Ford Bell*, ed. John Parker, (Minneapolis, Minn.: University of Minnesota Press, 1965), 9–32, and S.Y. Edgerton, Jr., "Florentine interest in Ptolemaic Cartography as background for Renaissance Painting, Architecture, and the Discovery of America." *Journal of the Society of Architectural Historians* 33 (1974): 275–92.

[8] See Piero Falchetta, "Marinai, mercanti, cartografi, pittori—Ricerche sulla cartografia nautica a Venezia (sec. XIV-XV)." *Ateneo Veneto* 182 (1995): 7–109.

[9] For nautical charting in Western Mediterranean see Tony Campbell, "Portolan Charts from the Late Thirteenth Century to 1500." In *The History of Cartography*. vol. 1. *Cartography in Prehistoric, Ancient, and Medieval Europe and the Mediterranean*, eds. J.B. Harley and David Woodward, (Chicago & London: The University of Chicago Press, 1987), 371–463.



The Atlantic Ocean depicted in a fragment of Pīrī Re'īs's *World Map*, 919/1513. This fully decorated early portolan chart follows the Catalan style of chart decoration. Topkapı Sarayı Müzesi Kütüphanesi, İstanbul (Revan 1633, mük.).



Saint Brendan and his sailors light a fire on the back of a whale, mistaking it for an island. Decorative scene frequent in early Spanish and Portuguese portolan eharts [i.e. the Media de Viladestes chart of 1413 in Bibliothèque Nationale, Paris (Rés. Ge. AA 566)]. Detail of the Pīrī Re'īs *World Map*, 919/1513. Topkapı Sarayı Müzesi Kütüphanesi, İstanbul (Revan 1633, mük.).

procedure concerning exports and imports, precious metals of each area, calendar and constellation spots for orientation).[10] These useful works could be the fruit of a production independent from *scriptoria.* Mariners that knew the sea and had a broad traveling experience produced most of the early nautical charts. But soon, their production was incorporated in the work of *scriptoria*, some of which would turn out to be map workshops.

In a typical map workshop[11] there was an division of labor. Many specialized artisans undertook the different stages in the creation of a

[10] One of the earliest handbooks of this type is *Libro di divisamenti di paesi e di misure di mercatantie*, written between 1310–1342 by a Florentine merchant who worked in the banking house of Bardi in Florenee. See Franceseo Balducci Pegolotti, *La Pratica della Mercatura*, edited by Allan Evans (Cambridge, Mass.: The Mediaeval Aeademy of Ameriea, 1936).

[11] For a model of a map workshop see Jodoeo Del Badia, "La bottega di Alessandro di Francesco Roselli mereaio e stampatore." *Miscellanea Fiorentina di Erudizione e di Storia* 2 (1894): 24–30. The process of map produetion is discussed in Geoge Tolias, *The Greek nautical charts, 15th–16th century—A contribution to the history of the*

map. The selection and preparation of the parchment bedding was usually made in other specialized workshops. The first stage comprised the main cartographical procedure: drawing thc coastline and the islands, the elements that composed orography and hydrography, cartographic symbols, loxodrome nets (rhumb lines), vertieal and horizontal lines, scalc bars, wind roses and compasses. The second stage comprised the writing down of place names[12] and any kind of notes. Then, they uscd to color coastlines, islands, rivers and lakes, to paint miniatures of castles, ports, cities, as well as numerous decorative elements like ships, flora and fauna, legendary monsters of the sea and the land, and sovereigns' flags. Thus, the chart was not only a handbook for use on board, but also a work of art thanks to the miniaturist's hand. In the case of printed charts, the engraver undertook the role of the miniaturist. The experienced mariner intervcned by adding and correcting the form of coastlines, the recording of reefs, shallows and difficult crossings. In short, he transferred real world on the parchment and contributed to the endeavor to depict land with prccision. This mariner, usually a captain, became the owner of the chart and signed it once finished.

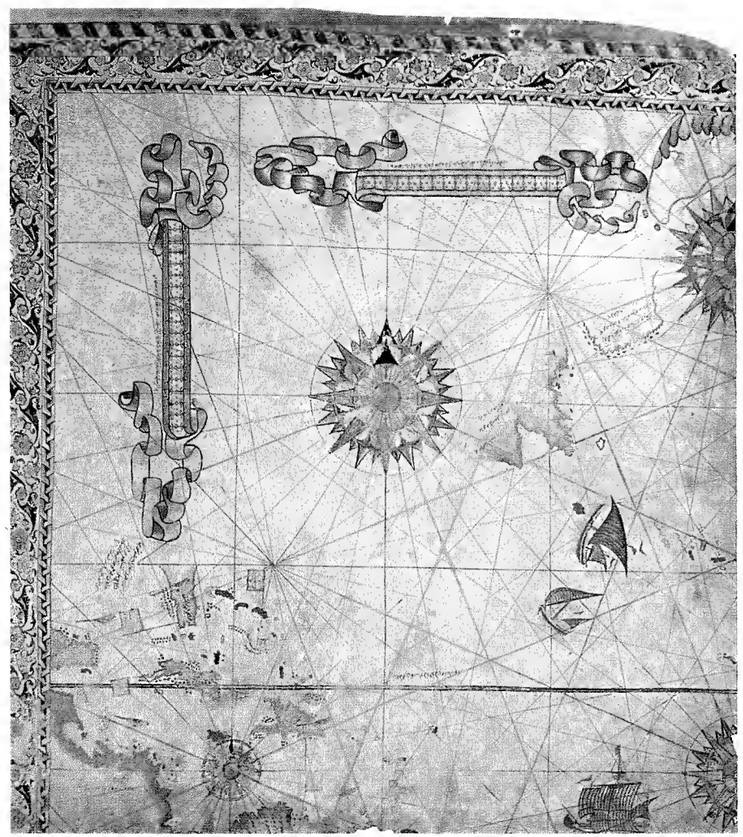
While we cannot refer to schools[13] in the nautical cartography of Western Mediterranean, we can discern two aesthetic directions, which maintain their purity until the middle of the 15th century. Catalan charts, produced mainly in Mallorca, are sumptuously decorated, with vivid colors while every free space is covered. This aesthetic fear of the empty (*horror vacui*), probably due to the Moorish tradition of the Iberian Peninsula, is also used in many samples of the Islamic nautical cartography of an extreme elegance, as it will be shown later on. On the other hand, Italian nautical charts are less painted and decorated. Sometimes inland regions are decorated only with place names. Certainly, mixed tendencies appeared soon in the style of nautical charts. Besides, many were thc Catalan cartographers that used to work and produce charts in Italian workshops.[14]

Mediterranean cartography, (Athens: National Hellenic Researeh Foundation & Olkos Editions, 1999), 51–3.

[12] David Woodward, "The manuseript, engraved and typographie traditions of map lettering." In *Art & Cartography: Six Historical Essays*, ed. D. Woodward, (Chieago: Chieago University Press, 1987), 174–212.

[13] See Campbell, *Portolan Charts*, pp. 392–5.

[14] For Catalan nautical cartography see Julio Rey Pastor, and Ernesto Garcia Camarero, *La cartografia mallorquina* (Madrid: Departamento dc Historia y Filosofia de la Cieneia, 1960), and Gonzalo de Reparaz, *Catalunya a les Mars. Navegants, Mercaders i Cartografs Catalans de l'Edat Mitjana i del Renaixement. Contribució a l'Estudio de la Historia del Comerç i de la Navegació de la Mediterránia* (Bareelona: Editorial Mentora, 1930). For Mallorquine and Portuguesc nautieal cartography see Rolando



Northwest part of the Atlantic Ocean in a fragment of Pīrī Re'īs's *World Map* of 935/1528–9. Luxurious chart with lavishly designed border, scale bars and compass roses. Topkapı Sarayı Müzesi Kütüphanesi, İstanbul (Hazine 1824).

Among signed works, we find cartographers with one or few charts. However, there were many well-known indefatigable cartographers or families working on charting. Benincasa's workshop

Laguarda Trias, *La Aportación Científica de Mallorquines y Portugueses a la Cartografía Náutica en los Siglos XIV al XVI* (Madrid: Instituto Histórico de Marina, 1964). Italian and Catalan nautical cartography are studied in Giuseppe Caraci, *Italiani e Catalani nella Primitiva Cartografia Nautica Medievale* (Roma: Istituto di Scienze Geografiche e Cartografiche, 1959).

showed the greatest production in the 15th century, while Freducci[15] and Agnese[16] produced their works in the 16th century. Their workshops produced a great number of charts and atlases. Today all surviving samples are spread all over the world in libraries, archives and museums.

It has already been mentioned that mariners were the most important chart producers; however, there are not many surviving works by them. Their charts were simpler; on the contrary, in order to create a luxurious chart many artisans should assist working in an organized map workshop. Many were also the cases where the miniaturist himself did the job of the cartographer. Benedetto Bordone[17] is a typical example. He produced the first printed world atlas of islands that was reprinted many times.

Libraries and Cabinets of Curiosities

Nautical charts along with other cartographical works, especially their expensive and luxurious samples, were hardly found on a ship, never got in touch with sea water, never were in risk due to storms. They were produced to serve not as technological tools, but as the creations of an experimental science and of extreme aesthetic value for people with exquisite taste. Renaissance people desired knowledge based on science. They searched and cultivated a culture based on curiosity[18] for unknown lands, tribes and civilizations. Nautical charts bear the most accurate and up-to-date information. Thus, they soon found a place among the strange objects brought from the exploration of new continents, routes and civilizations in the libraries of monasteries, courts, noblemen, bourgeois and rich merchants. Renaissance people were obsessed with the collection of strange objects, of flora and fauna (pictures of plants and stuffed animals), of stones, metals and art works from unknown cultures. All these composed a "macrocosm in a microcosm," they were the geography of an extended planet, of a completely new world, whose diversity was put in order on a map canvass. Thus, in a cabinet of curiosities (*studioli*,

[15] Giuseppe Caraci, "The Italian cartographers of the Benincasa and Freducci families and the so-called Borgiana map of the Vatican Library." *Imago Mundi* 10 (1953): 23–49.
[16] H. R. Wagner, "The manuscript Atlases of B. Agnese." *Papers of the Bibliographical society of America* 25 (1931): 1–109, and id., "Additions to the Manuscript Atlases of Battista Agnese." *Imago Mundi* 4 (1947): 28–30.
[17] Lilian Armstrong, "Benedetto Bordon, Miniator, and Cartography in early sixteenth century Venice." *Imago Mundi* 48 (1996): 65–92.
[18] See Tolias, *Greek Nautical Charts*, 65–7.

cabinets de curiosités, *Wunder-*, *Schatz-* and *Kunstkammern*)[19] a map had the same position that the cabinets of bibliographic cards have in a library. Besides, most of the times those cabinets were next to or inside these libraries, providing visual material to the memoirs of explorers and travelers. Later on, those cabinets were transformed into today's museums.[20]

The Ottoman Response

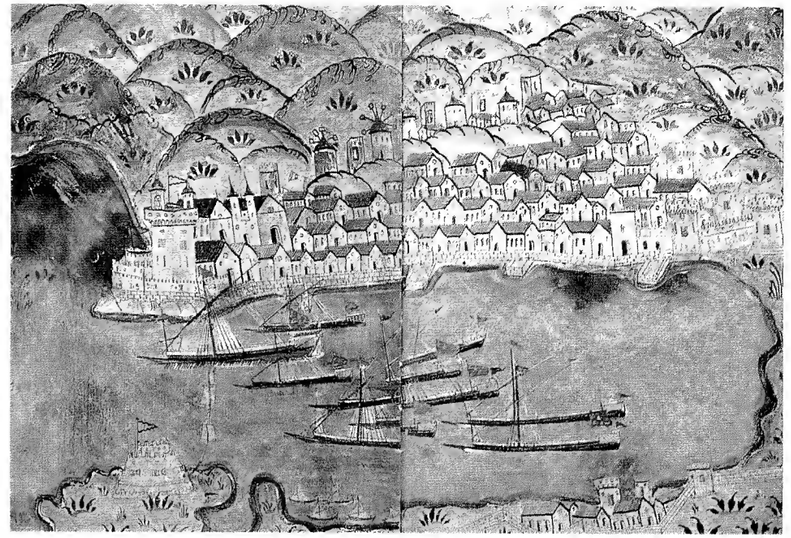
Forerunners of Cartography

Geography in the Islamic East was connected to the classical Arabic and Persian geography handbooks, which were followed by round maps of the T-O type. Those were works by al-Balḫī, al-Iṣṭaḫrī, Ibn Ḥawḳal, al-Wardī, al-Ḳazwīnī, al-Idrīsī, as well as by al-Kāşġarī. Muslim geographers also went in for diagram maps that showed the way to Mecca and Kaᶜaba or their topographical plans.

Only a few Arabic nautical charts have survived. One third of them, three in number, are in İstanbul; they were produced in the Maghreb and Eastern Mediterranean from the beginning of the 15th century until the first years of the reign of Süleyman the Lawgiver,

[19] For the cabinet of curiosities see Samuel Quiccheberg, *Inscriptiones vel tituli. Theatri amplissimi, complectentis rerum universitatis singulas materias et imagines eximias, ut idem recte quoque dici possit: Promptuarium artificiosarum miraculasarumque ac omnis rari thesauri et pretiosae suppellectilis*…(Monachium: Berg, 1565); Julius von Schlosser, *Die Kunst- und Wunderkammern der Spätrenaissance. Ein Beitrag zur Geschichte des Sammelwesens. Ein Handbuch für Sammler und Leibhaber* (Leipzig, 1908; reprinted 2 vols. Braunschweig: Klinkhardt & Biermann, 1978); Adalgisa Lugli, *Naturalia et Mirabilia, il collezionismo enciclopedico nelle Wunderkammern d' Europa* (Milano: Mazzotta, 1983). French expanded edition, *Naturalia et Mirabilia, les cabinets de curiosités en Europe* (Paris : Adam Biro, 1998); Horst Bredekamp, *Antikensehnsucht und Maschinenglauben. Die Geschichte der Kunstkammer und die Zukunft der Kunstgeschichte* (Berlin: Wagenbach, 1993). English edition, *The Lure of Antiquity and the Cult of the Machine* (Princeton: Marcus Wiener, 1995); Gérard Defaux, *Les curieux, les glorieux et la sagesse du monde dans la première moitié du XVIe siècle* (Lexington, KY. French Forum, 1982) ; Krzystof Pomian, *Collectioneurs, amateurs et curieux—Paris, Venise: XVIe–XVIIIe siècle* (Paris : Gallimard, 1987), and Andreas Grote (ed.), *Macrocosmos in Microcosmo. Die Welt in der Stube. Zur Geschichte des Sammelns 1450 bis 1800* (Opladen: Leske & Budrich, 1994).

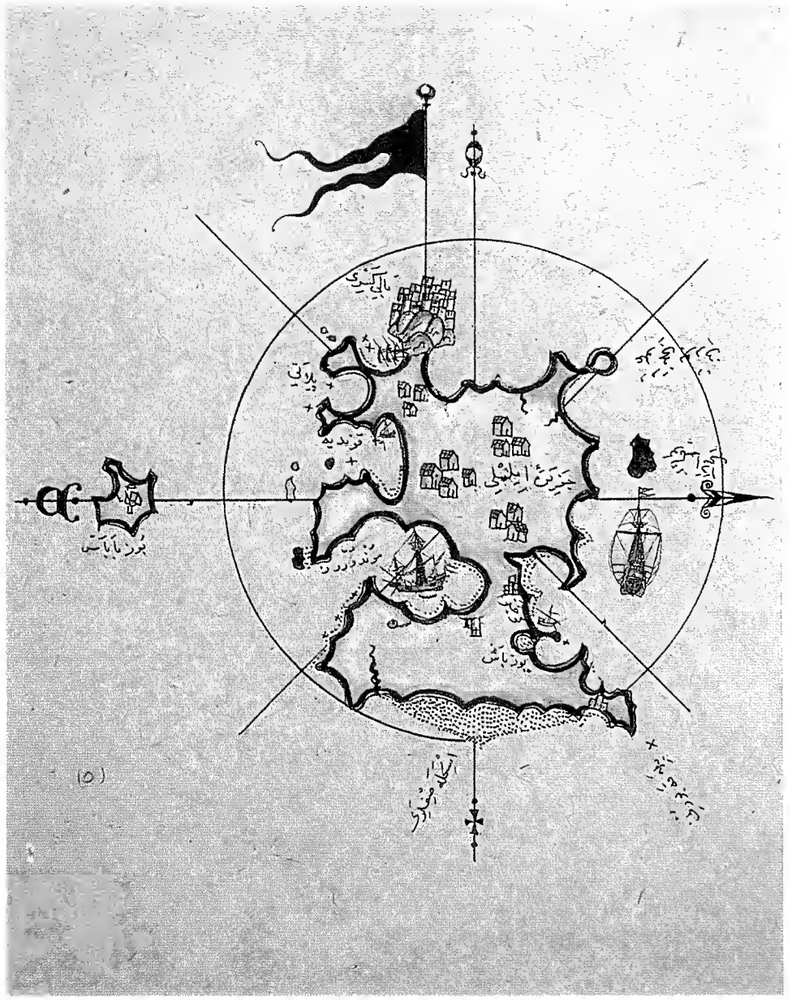
[20] Oliver Impey and Arthur MacGregor (eds.), *The Origins of Museums: The Cabinet of Curiosities in Sixteenth- and Seventeenth Century Europe* (Oxford: Oxford University Press, 1985).



The city and harbor of Marseille. Bird's-eye view topographical map designed in the portolan style. In Matrāḳçı Naṣūḥ, *Tārīḫ-i Feṯḥ-i Şiḳloş ve Usṭurġun ve Usṭunibelġrād*. Topkapı Sarayı Müzesi Kütüphanesi, İstanbul (Hazine 1608, ff. 24b–25a).

passing afterwards to the hands of the Ottoman Sultan. The oldest one, that of al-Kātibī, is a plain chart without decoration, while the other two remind us of Catalan charts, rich in colors and drawings. Even though there are no Ottoman copies left of these charts, they might have been used as models for the creation of similar Ottoman works.[21]

[21] For classical Arabic cartography see Gerald R. Tibbets, "The Beginnings of a Cartographic Tradition", pp. 90–107, also "The Balkhi School of Geographers", pp. 108–36, and "Later Cartographic Developments", pp. 137–55. See, also, S. Maqbul Ahmad, "Cartography of Al-Sharif al-Idrisi", pp. 156–74. For Qibla and Kaaba mapping see David A. King and Richard P. Lorch, "Qibla Charts, Qibla Maps, and Related Instruments", pp. 189–205. For Arabic portolan charts see Svat Soucek, "Islamic Charting in the Mediterranean", pp. 263–5. All these articles are in *The History of Cartography*. vol. 2, book 1. *Cartography in the Traditional Islamic and South Asian Societies*, eds. J.B. Harley and David Woodward. (Chicago & London: the University of Chicago Press, 1992). The Arabic and Ottoman maritime geography is studied in Игнатий Ю. Крачковский, "Морская география в веках XV–XVI у Арабов и Турок." [Maritime Geography by Arabs and Turks in 15th–16th century] *Географический Сборник (Geographicheskii Sbornik)* 3 (1954): 33–8.



The island of Lemnos (İlimli) in the Aegean Sea. Chart of the *isolario* style in Pīrī Re'īs, *Kitāb-ı Baḥrīye*, 2nd version manuscript copied 982/1574. Süleymaniye Kütüphanesi, İstanbul (Aya Sofya 2612, f. 52b).

Nakkaşhane and Galata Workshops

Meḥemmed the Conqueror possessed many of the features found in the sovereigns of Western Europe. His insistence on conquering the former Rūm areas and on coming closer to Europe supported his special personal interest in geography and cartography. It is said that he owned European maps,[22] and that he ordered the Arabic translation of the Ptolemaic Geography from the scholar Georgios Amiroutzis.[23] His tendency to resemble European kings, in combination with his inclination towards beautiful and important things, made him invite numerous scholars and artists into his court.[24] Italian painters, like Bellini, painted the powerful man of the East bringing an aesthetic language that set a good precedent for the Ottoman art of depiction.[25] Moreover, there were Ottoman miniaturists, like Sinān Beg, who, after visiting Venice, returned to İstanbul and taught their students what they had learnt during their journey.

According to testimonies, since the era of Süleyman the Lawgiver there were many artists and artisans, the so-called *ehl-i hiref* in the palace of Topkapı. Part of them was the Guild of Painters (*cemāʿat-i naḳḳāşān*) who worked in *naḳḳāşḫāne*.[26] Its members were divided in two groups, the *bölük-i Rūmiyān* comprising painters from Anatolia and the Balkans and the *bölük-i ʿAcemān*, comprising painters from Iran. In the first group are found names denoting people from Hungary, Austria, Bosnia, as well as Franks. In mid 16th century, as it is observed from the payroll

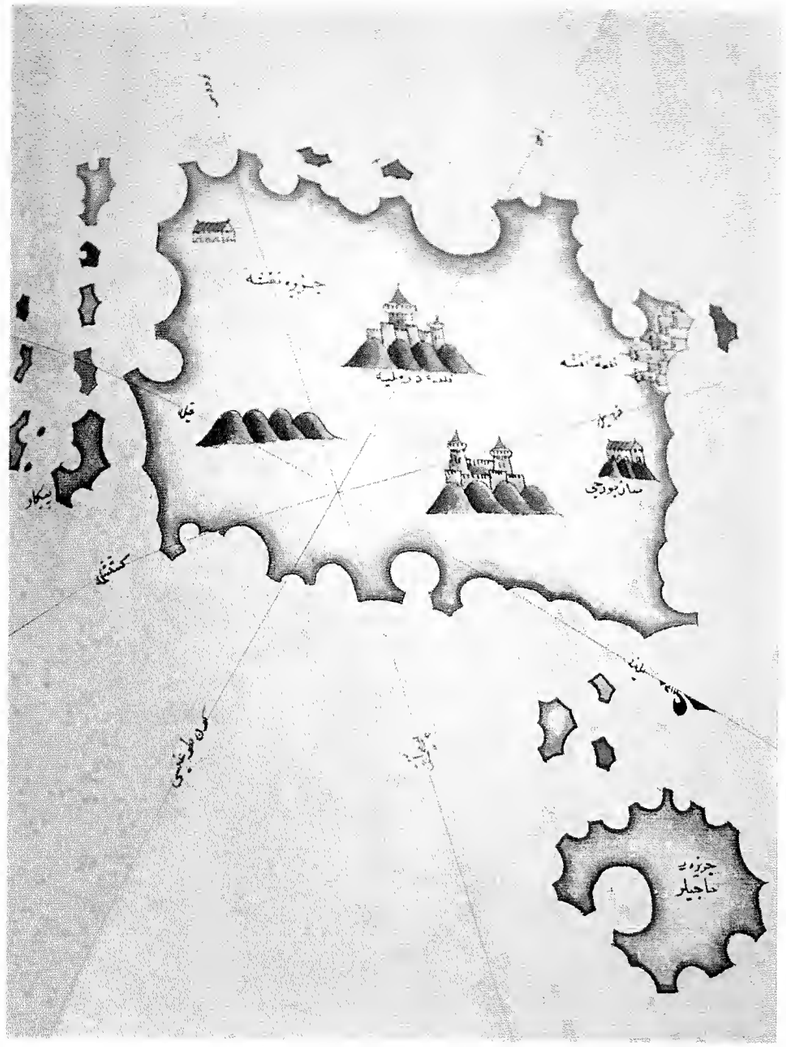
[22] The Venetian Giacomo de' Languschi, or Langusto, saw a map possessed by Fatih that depicted the states and provinces of Europe. See Bernard Lewis, *Istanbul and the civilization of the Ottoman Empire* (Norman: University of Oklahoma Press), 26. See, also, Franz Babinger, "An Italian map of the Balkans, presumably owned by Mehmed II, the Conqueror (1452–53)." *Imago Mundi* 8 (1951): 8–15.

[23] Critobuli Imbriotae *Historiae*, recensuit D.R. Reinsch, (Berolini et Novi Eboraci: Walter de Gruyter, 1983), A 4,2.

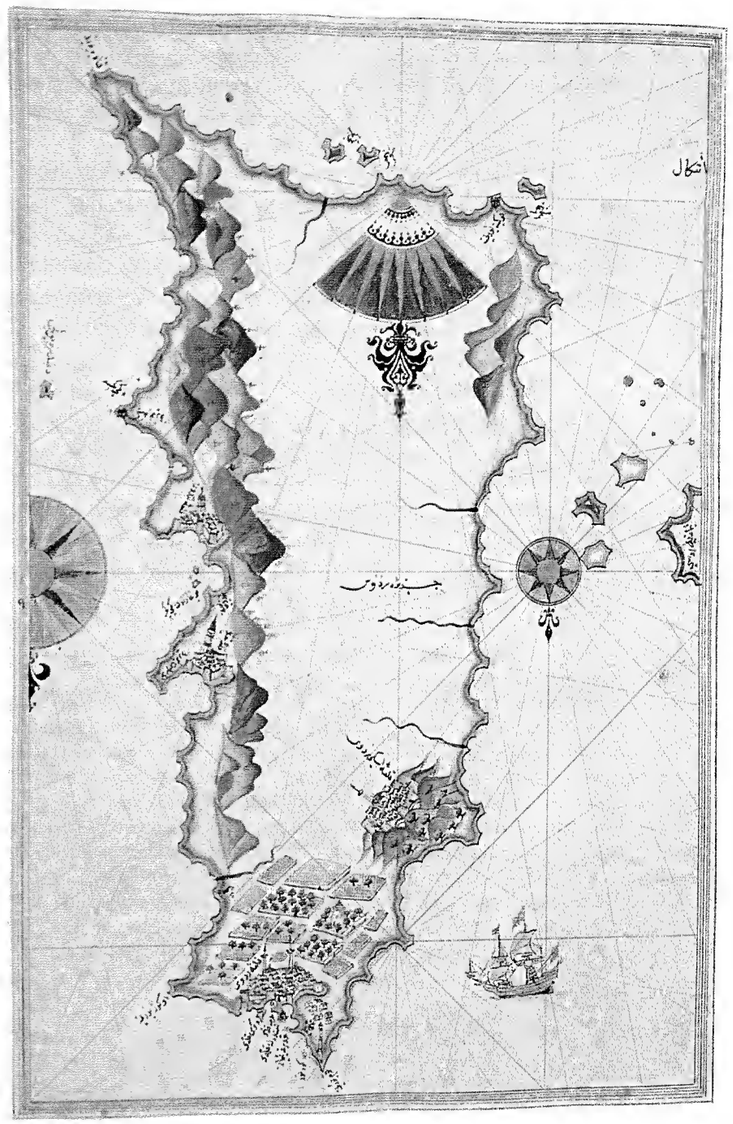
[24] Barnette Miller, *The Palace School of Muhammad the Conqueror* (Cambridge: Harvard University Press, 1941), and Julian Raby, "Mehmed the Conqueror's scriptorium." *Dumbarton Oaks Papers* 37 (1983): 15–34.

[25] Esin Atıl, "Ottoman Miniature Painting under Sultan Mehmet II." *Ars Orientalis* 9 (1973): 103–20. For the famous Fatih painting by Bellini see *Ressam, Sultan ve Portresi—Gentile Bellini'ye göre Fatih Sultan Mehmet,* exhibition catalog, (İstanbul: Yapı Kredi Kültür Sanat Yayıncılık, 1999).

[26] Carol G. Fisher, *Naḳḳāsh-khāna*. EI^2. See, also, the excellent study by Esin Atıl in *The Age of Sultan Süleyman the Magnificent.* Exhibition catalog, (Washington, D.C., and New York: National Gallery of Art & Harry N. Abrams, 1987), 29–111.



The island of Naxos (Naḳṣa) in the Aegean Sea. Chart of the *isolario* style in Seyyid Nūḥ, *Deñiz Kitābı*, an expanded adaptation without text from Pīrī Re'īs, *Kitāb-ı Baḥrīye*. Considered as a 3rd version *Baḥrīye* manuscript copied ca. 1648–50. Biblioteca Universitaria di Bologna, Bologna (MS 3609, f. 32b).



The island of Rhodes (Rodos) in the Aegean Sea. Chart of the *isolario* style in Pīrī Re'īs, *Kitāb-ı Baḥrīye*, 3rd version manuscript copied 2nd half of the 17th century. İstanbul Üniversitesi Kütüphanesi, İstanbul (T. 6605, 101a).

registers,[27] those groups were a mixture of artists of various descents. This division is indicative of the aesthetic diversity within the palace workshop. It is also known that many artists could work next to high officers of the capital and the provinces, by reproducing codices for their private libraries.[28]

The term *naḳḳāş* comprises many kinds of artists and artisans: those who paint and decorate surfaces, those who embroider clothes, manuscript miniaturists and wall painters. In the shipyards of İstanbul the same term (also as *ṣabbāġ*) is used for the painters of wooden and metal surfaces as well for the painters of a ship's sails.[29] As for *naḳḳāş* as a painter there are also many different specializations: *ḳaṭṭāᶜ* (engraver), *naḳḳāş* (color painter), *muṣavvir* (portrait painter), *ṭarrāḥ* (decorator or landscape painter), *ressām* (draughtsman).[30] Those painter-miniaturists[31] drew the world maps that accompanied the classical Arabic geographies as well as the topographical maps and plans of the Islamic holy sites.

Apart from the map production in the palace, there is also a reference by Evliyā Çelebī in his *Seyāḥatnāme* (1048/1638) to map workshops in Galata:

[27] Rıfkı Melûl Meriç, *Türk nakış sanᶜatı tarihi araştırmaları*. Vol. I, *Vesîkalar* (Ankara: Feyz ve Demokrat Ankara, 1953), and İsmail Hakkı Uzunçarşılı, "Osmanlı sarayında Ehl-i Hiref sanatkarlar defterleri." *Belgeler* 15 (1986): 23–76.

[28] The numerous rich regional collections of Ottoman officers in the area of Bulgaria are a typieal example. The remains of these collections, that contain codiees with geographieal texts, are studied in Михаила П. Стайнова, *Османските библиотеки в Българските земи XV-XIX век, студии* [Ottoman Libraries in Bulgarian Lands, XV-XIX centuries. Studies] (София: Народна Библиотека 'Кирил и Методий', 1982).

[29] İdris Bostan, *Osmanlı bahriye teşkilâtı: XVII. yüzyılda Tersâne-i Âmire* (Ankara: Türk Tarih Kurumu, 1992), p. 80 and 135.

[30] İsmail Hakkı Uzunçarşılı, *Osmanlı Tarihi* (Ankara: Türk Tarih Kurumu, ⁶1994), 2: 616. See, also, "Nakkaş" in Mehmet Zeki Pakalın, *Osmanlı tarih deyimleri ve terimleri sözlüğü*, 3 vols, (İstanbul: Millî Eğitim Bakanlığı, 1946–51).

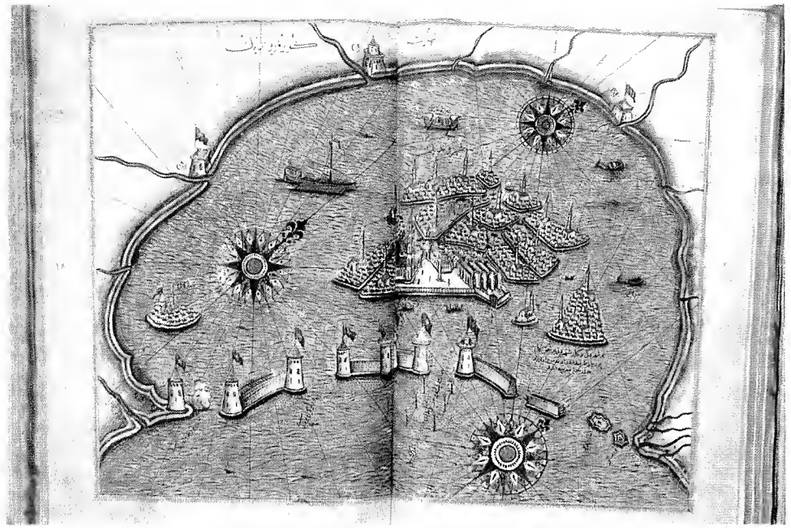
[31] For a history of Ottoman miniature painting, see *The Topkapi Saray—The Albums and Illustrated Manuscripts*. Translated, expanded and edited by J.M. Rogers from the original Turkish by Filiz Çağman and Zeren Tanındı. (Boston: New York Graphie Society & Little, Brown and Company, 1986), and Oktay Aslanapa, *Turkish art and architecture*, (London: Faber and Faber Limited, 1971), 308–22; id., "Türk Minyatür Sanatı." In *Türk Dünyası El Kitabı* (Ankara: Türk Kültürünü Araştırma Enstitüsü, 1992), 2:421–37; Ayla Ödekan, "Minyatür." In *Türkiye Tarihi*, ed. Sina Akşin, (İstanbul: Cem Yayınları, 1992), 3: 424–9. For the art of the book in general, see Esin Atıl, "The Art of the Book." In *Turkish Art*, ed. Esin Atıl, (Washington, D.C., and New York: Smithsonian Institution Press & Harry N. Abrams, 1980), 137–238.

The guild of mapmakers: Their class comprises eight workshops and 15 artisans, who know every occult and strange science. They know many languages, mainly Latin and the similar ones and read books like *Atlas Minor*, *Geography* and *Mappamundi*, works of elder wise men dealing with cosmography. They draw and measure whatever is on the surface of the earth: the Black Sea, the Mediterrancan, the Oceans, the Sea of Oman, the Sea of Suez, the Caspian Sea or Sea of Gilan, the Sea of Ormuz, the Venetian Gulf and the Van Lake; every sea, gulf and strait, every big river and rocks. Then they sell them to the mariners. For every seaman, those are the soul of the science of cartography. If there are reefs or precipitated rocks, deep or shallow waters near the land or the island they go, if there is a natural port, they draw it out on the eight winds and the seventy (sic) *kertes*[32]. Captains who are experienced in these charts, use them to travel and cross the Sea of Oman. It is a great science. (...) Finally, [during the guild parade] these cartographers march past with pomp on carriages, carrying their products: charts, world images drawn by them and representations of many castles and cities that decorate their workshops.[33]

It is possible that these workshops had started working much earlier. In 1535 Paolo Giovio wrote in one of his letters that he had acquired a topographical plan of the Dardanelles from his relative Pietro

[32] For *kerte*, a rhumb of the mariner's compass, see Henry & Renée Kahane and Andres Tietze, *The Lingua Franca in the Levant. Turkish nautical Terms of Italian and Greek Origin* (İstanbul: ABC Kitabevi, 1988), 366–7. As for the number of kertes, they are always divided by four, so seventy two is the right number instead of seventy.

[33] "Eṣnāf-ı ḥarṭacıyān: Nefcrāt 15 ve deḳākīn sekiz bu ṭā'ife cemīᶜ-i ᶜulūm-ı ġarībe ve ᶜaeībeye māliklerdir ve bir ḳaç lisāna mālikdir cümleden lisān-ı Latīn-i Eflatine māliklerdir kim selef ḥukemāların ᶜilm-i hey'et üzre te'līfātlarında *Kitāb-ı Aṭlas Minor* ve *Coġrāfīye* ve *Papamonṭa* misilli kitābları oḳıyup cemīᶜ-i rūy-i zemīnde olan Ḳaradeñizi ve Aḳdeñizi ve Baḥr-ı Muḥīṭi ve Baḥr-ı Okyanūsı ve Baḥr-ı Ummanı ve Baḥr-ı Süveysi ve Baḥr-ı Hazeri yaᶜni Giylān Deñizi {ve Baḥr-i Ummānı} ve Baḥr-ı Hürmüzi ve Halie-i Bundukānı ve Baḥr-ı Vanı ve'l-ḥāṣıl eümle ebḥurleri ve ḥalīeleri ve turᶜaları ve bu diyārlarda maḥlūṭ olan nehr-i ᶜaẓīmleri ve rūy-i arżda olan dağ ve ṭaşları cümle taṣvīre getürüp hey'etle yazup gemieilere fürūḥt ėderler kim cemīᶜ-i keştībānlarıñ bu ᶜilm-i ḥarṭa eānlarıdır. Zīrā sekiz rūzgār ve yetmiş kerte üzre ne diyāra gidecegin ve ne eezīreye uġrayup ol limana ḳarīb sığ mıdır ve döküntüli ṭaşlık mı ve ḳumsal mı ve ᶜamīḳ mi ve aᶜlā yataḳ liman mıdır? Cümle bu ḥarṭalarda masṭūr olup reᵓīsler bu ḥarṭalar ile ᶜamel ėdüp Baḥr-ı Ummanda mellāḥlıḳ ėderler, ᶜilm-i aẓīmdir. (...) Netīee-i merām bu ḥarṭaeı ḳavmi ᶜarabalar üzre dükkānların ḥarṭa kaġızları ile dünyā taṣvīri taḥrīr olmış ve niçe ḳılāᶜ ve şehirler ṣūretleriyle dükkānların zeyn ėdüp kendüler daḥı vaḳaᶜ u vaḳārları ile ᶜubūr ėderler." See Evliyā Çelebī *Seyāḥatnāmesi* (TSMK, Bağdat 304, f. 163a).



The city of Venice and the lagoon. Topographical map of the *isolario* style in Pīrī Re'īs, *Kitāb-ı Baḥrīye*, 3rd version manuscript copied 2nd half of the 17th century. Walters Art Gallery, Baltimore (MS. W. 658, ff. 135b–136a).

della Porta who lived in İstanbul.[34] But not all charts were produced in these two places. Many charts must have been the fruit of a cartographer's work on his own. In particular, as to nautical charts, these men used to be mariners who transferred their personal experience from the *geometry* of the sea onto the geometry of the map. In that case most of the stages in the production of a chart were the result of one person's work. However, it was common practice to use a prepared cartographical base, where they added place names, corrected the bas-relief of the land, updated the chart with new information. Finally, they signed the chart at a distinct place, thus asserting their authorship of the work. As to the Ottoman workshops and their actually known products, it is said that half-completed charts were imported from Italy. They added but the place names in Ottoman and the miniature-like decoration.[35] In an excellent article, Antonio Fabris proves that the printed Ottoman heart-shaped world map, produced in 1559–60, was a Venetian work produced to be sold in the Ottoman

[34] L. Klinger and J. Raby, "Barbarossa and Sinan: a portrait of two Ottoman corsairs from the collection of Paolo Giovio." In *Venezia e l'Oriente Vicino*, Atti del Primo Simposio Internazionale sull' Arte Veneziana e l'Arte Islamica, Venezia 9–12 Dicembre 1986, a cura di Ernst J. Grube (Venezia: L' Altra Riva, 1989), 50.

[35] Svat Soucek, "The 'Ali Macar Reis Atlas' and the Deniz Kitabı: Their place in the genre of portolan charts and atlases." *Imago Mundi* 15 (1971): 17–27.

market.[36] In the same article, Fabris cites documents involving the ordering of a map in Venice by the Ottoman Court.

Ottoman Topographical Mapping and Nautical Charting

For the Ottomans, the 16th century was rich in topographical maps and nautical charts.[37] Maṭrāḳçı Naṣūḥ was the most important miniaturist that illustrated historical manuscripts with topographieal maps. He was the writer of texts on the Lawgiver's campaigns in Mesopotamia and Hungary and managed to depict the campaign stages, the castles and the cities they had met in a masterful way. His paintings, rich in colors and shapes, are quite naïve and give a rather vague aspect of perspective using the so called bird's-eye view. *Beyān-i menāzil-i sefer-i ʿIrāḳeyn-i Sulṭān Süleymān Ḫān* (The Stages on Sultan Süleymān's Campaign in the two Iraqs),[38] ca. 944/1537–8, is his most important work, while in his *Tārīḫ-i Fetḥ-i Şiḳloş ve Usturġun ve Usṭunibelġrād* (Conquest of Siklós, Esztergom and Székesfehérvár),[39] ca. 952–7/1545–50, and *Tārīḫ-i Sulṭān Bāyezīd* (History of Sultan Bayezid), ca. 952–7/1545–50, are found numerous topographic versions of ports like Marseille, Antibes, Toulon, Lepanto, that differ from his usual miniatures, following the so called *portolan style*,[40] as they seem to copy the style of relevant European works, like that by Jerôme Maurand.[41] Works of urban topography are related to the sea, the coloring of which gives a more vivid pictorial result. This kind of cartographic works are found in the *Island Books*

[36] Antonio Fabris, "Note sul mappamondo cordiforme di Haci Ahmed di Tunisi." *Quaderni di Studi Arabi* 7 (1989): 3–17.

[37] The most comprehensive study of Ottoman nautical charting is Svat Soucek, "Islamic Charting in the Mediterranean." In *The History of Cartography*. vol. 2, book 1. *Cartography in the Traditional Islamic and South Asian Societies*, eds. J.B. Harley and David Woodward. (Chicago & London: The University of Chicago Press, 1992), 263–92.

[38] Naṣūḥü's-Silāḥī (Maṭrāḳçı), *Beyān-ı menāzil-i sefer-i ʿIrāḳeyn-i Sulṭān Süleymān Ḫān*, ed. H.G. Yurdaydın, (Ankara: Türk Tarih Kurumu, 1976).

[39] Sinan Çavuş (*sic*). *Tarih-i Feth-i Şikloş, Estergon ve İstol[n]i-Belgrad or Süleymanname*. Rendered into English by S. Artemel. (Ankara: The Historical Research Foundation- İstanbul Research Center, 1987), where the work is erroneously attributed to Sinan Çavuş.

[40] Nurhan Atasoy and Filiz Çağman, *Turkish Miniature Painting* (İstanbul: R.C.D. Cultural Institute, 1974), 27.

[41] Dimitris Loupis, "Ottoman Adaptations of Early Italian Isolarii." *International Map Collectors' Society Journal* 80 (2000): 20–1.

(*isolarii*), nautical cartographic products created in order to describe the Mediterranean islands since the beginning of 15th century.[42]

Nigārī or Ḥaydar Re'īs, a mariner[43] and realist painter, combines nautical knowledge and the art of depiction. It is not known whether he designed nautical charts or just assisted in their decoration; however, it is rather certain that he lived in an ambiance where Ottoman nautical charting and miniature painting met each other.[44]

Pīrī Re'īs (ca. 875–961/1470–1554), Ottoman corsair and admiral, with his two world maps (in 919/1513 and 935/1528–9) and his *isolario* entitled *Kitāb-ı Baḥrīye* (Book on Navigation)[45] identified his name with the Ottoman nautical cartography. His two charts are richly decorated, reminding us of the Catalan and Portuguese charts, that served as a model to the cartographer, according to his own testimony. His *isolario*, a text divided into different chapters with nautical instructions, is accompanied by charts of the island or the coast he describes and is compiled in two different versions (1520–1 and 1525–6) produced by himself. In the 17th century and mainly during the reign of Meḥemmed IV (1648–87), this work was reproduced in a series of richly decorated copies, diverse in content, as a third version.[46] The *Book of Navigation* was reproduced a century after his first production, as the Ottomans wanted to have a cartography and geography handbook. It was written in their own language and described the Mediterranean in an accurate and detailed way.[47] The copies of the first version intended for mariners. Texts were

[42] Hedda Reindl, "Zu einigen Miniaturen und Karten aus Handschriften Maṭraqčı Naṣûḥ's." In *Islamkundliche Abhandlungen*, Beiträge zur Kenntnis Südosteuropas und des Nahen Orients, Nr. 18, (München: Rudolf Trofenik, 1974), 146–71.

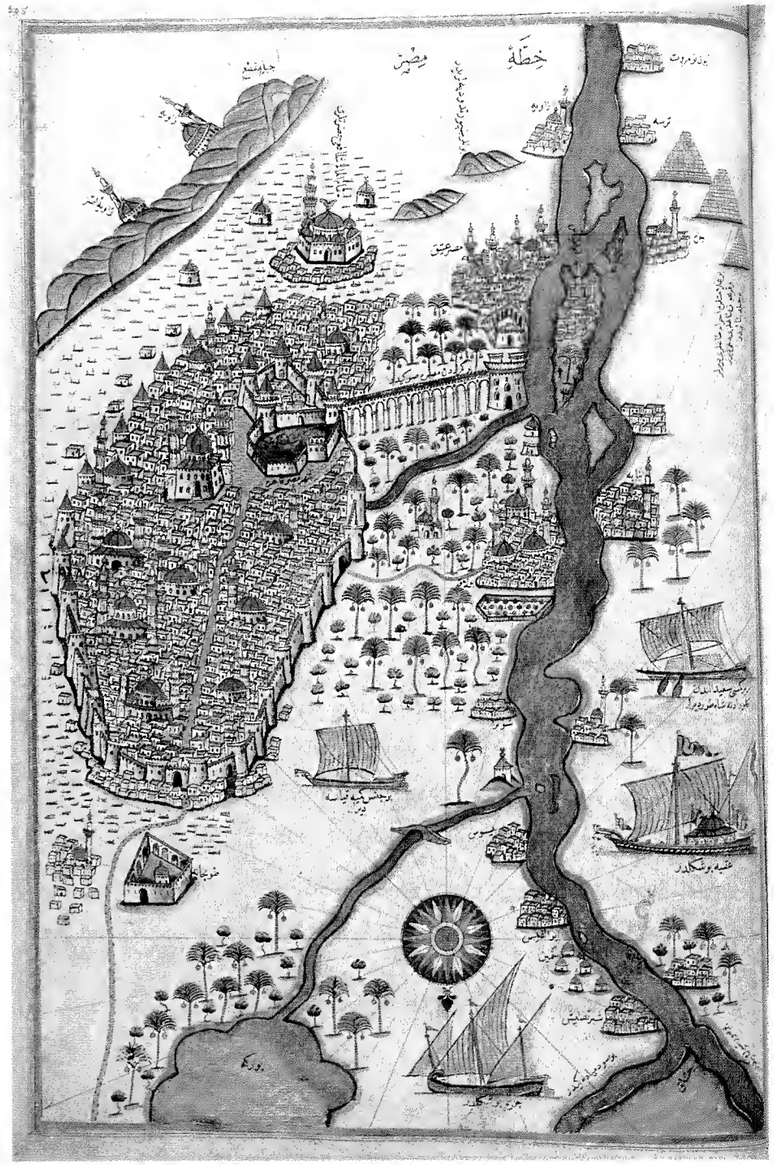
[43] For depictions of the Ottoman navy in miniature painting see Nurhan Atasoy, "Minyatürlerde Türk donanması." *Türkiyemiz* 6/17 (1975): 2–8.

[44] Süheyl A. Ünver, *Ressam Nigari: Hayatı ve eserleri* (Ankara: Milli Eğitim Bakanlığı, 1946).

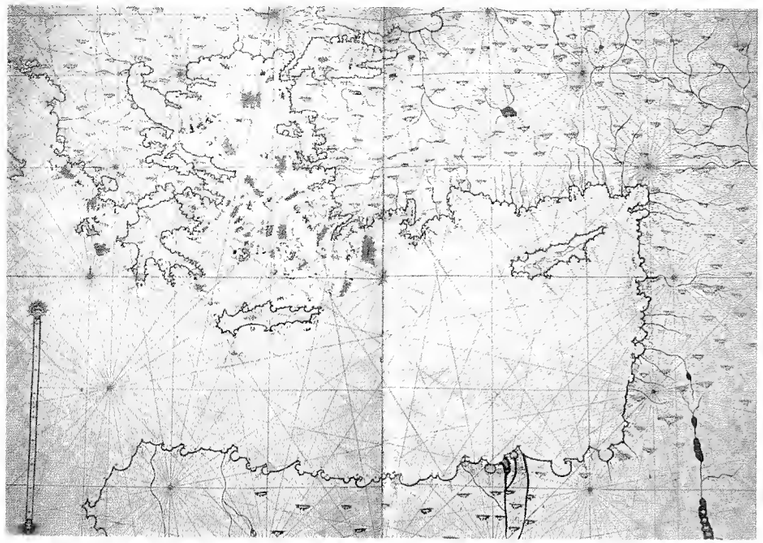
[45] Facsimile reproduction of one of the best second version copies is Pîrî Re'îs, *Kitab-ı Bahriye*, ed. E.Z. Ökte, 4 vols, (Ankara: The Historieal Research Foundation - İstanbul Researeh Center, 1988). The Aegean Sea part is translated in Greek and studied in detail in Dimitris Loupis, *Ο Πιρί Ρείς, η Οθωμανική χαρτογραφία και η λίμνη του Αιγαίου* [*Piri Reis, Ottoman Cartography and Aegean Lake*] (Athens: Trokhalia, 2000).

[46] The eopy of the Bologna University Library is reproduced in Hans I. Kissling, *Der See-Atlas des Sejjid Nûh* (Münehen: Rudolf Trofenik, 1966). The İstanbul Unıversity eopy is partially reprodueed ın Kemal Özdemir, *Pırı Reıs* (İstanbul: Başkent Ofset Kültür Yayınları, 1994).

[47] The copying of Pîrî Re'îs's work during this period is studied in Dimitris Loupis, "*Piri Reis's Book on Navigation (Kitab-i Bahriye) as a Geography Handbook*", unpublished paper presented in the 18th International Conferenee on the History of Cartography (Athens, 1–16 July 1999).



Cairo and the Nile. Topographieal map in Pîrî Re'îs, *Kitāb-ı Bahrīye*, 3rd version manuseript copied 2nd half of the 17th eentury. Walters Art Gallery, Baltimore (MS. W. 658, f. 305a).



Eastern Mediterranean. Anonymous portolan atlas called "*Atlas-ı Hümayun*." Considered ca. 1570. Arkeoloji Müzesi Kıtaplığı, İstanbul (MS. 1621, ff. 2b–3a).

Texts were shorter and charts simpler. Numerous mariners, who signed their own copy, reproduced them probably in the workshops of Galata. They must be among the simple and cheap products of these workshops. On the contrary, the second version copies, which were intended for the Lawgiver, were more complex and rich, luxurious and well-designed, since they were supposed to meet Sultan's learned and aesthetic interests. Those copies were anonymous and must have been of the most expensive products of Galata workshops. The even more luxurious third version copies were produced with the use of expensive material. Elegance and sumptuousness in their design are well discerned in the drawing of coastlines, the combination of colors, the decorative elements, the castle and city miniatures.[48] The chart turns out to be not only a strictly

[48] Paolo Cuneo, "The urban iconography in the works of Piri Reis and Matrakçı Nasuh, between geometrical abstraction and topographical accuracy." In *Proceedings of the II. International Congress on the History of Turkish and Islamic Science and Technology, 28 April–2 May 1986,* İstanbul *1986*. (İstanbul: İ.T.Ü. Research Center of History of Science and Technology, 1986), 1: 263–8, and Günsel Renda, "Representations of Towns in Ottoman Sea charts of the sixteenth Century and their Relation to Mediterranean Cartography." In *Soliman le Magnifique et son temps*. (Paris: AFAA, 1992), 279–97. See, also, J.M. Rogers, "Itineraries and Town Views in Ottoman

technological product, but also a feast of beauty, intended for exquisite tastes. This kind of manuscripts could only be produced in the miniature workshop of the palace.

There are three more nautical atlases of the same style, of which one is attributed to ᶜAlī Macar Re'īs and the other two are anonymous.[49] The Hungarian convert ᶜAlī Macar Re'īs seems, apart from his name, to have added some place names in his atlas. In the *Atlas-ı Hümayun*, the anonymous atlas in the Library of the Archaeological Museums in İstanbul (MS. 1621), place names can be hardly discerned while simplified tiny castle and city vignettes are spread in the inland of the illustrated lands, attributing a slight sense of miniature painting in the charts. The masterpiece of Ottoman nautical cartography, an example of unique aesthetics, is an anonymous atlas known as the Walters *Deniz Atlası*, situated now in the Walters Art Gallery in Baltimore (MS. W. 660). In the charts of this atlas, the miniaturist revels by letting the Islamic aesthetics in miniature painting spread all over the canvas. City vignettes cover every free space (*horror vacui*). For example the topographic depiction of İstanbul is extended all over the Balkans. The producer of this work uses every decorative possibility afforded by cartography. He makes pure art. Cartography is the pretext, painting is the desired result.[50]

In these atlases, geography and topography are combined according to Ptolemy and Renaissance rules.[51] Within the framework of

Histories." In *The History of Cartography*. vol. 2, book 1. *Cartography in the Traditional Islamic and South Asian Societies*, eds. J.B. Harley and David Woodward. (Chicago & London: the University of Chicago Press, 1992), 228–55.

[49] Kemal Özdemir, *Ottoman Nautical Charts and the Atlas of Ali Macar Reis*. (İstanbul: Marmara Bank, 1992); Thomas D. Goodrich, "Atlas-ı Hümayun: a sixteenth century Ottoman maritime atlas discovered in 1984." *Archivum Ottomanicum* 10 (1985): 83–101, and id., "The earliest Ottoman maritime atlas—The Walters *Deniz Atlası*." *Archivum Ottomanicum* 11 (1986): 25–50.

[50] The "Boke of Idrography" by the Dieppe hydrographer Jean Rotz (1542) is an atlas that serves as a model of highly illustrated nautical charts, an excellent combination of the arts of cartography and miniature painting. See Hellen Wallis, "The Role of the Painter in Renaissance Marine Cartography." In *Imago et Mensura Mundi*, ed. Carla Clivio Marzoli, (Firenze: Istituto della Enciclopedia Italiana, 1985), 2: 515–23.

[51] For the Ptolemaic and Renaissance meaning of the terms *cosmographia*, *geographia* and *topographia* or *chorographia*, that is the transition from the depiction of macrocosm to the microcosm, see David Woodward, *Maps as Prints in the Italian Renaissance—Makers, Distributors & Consumers*, (London: The British Library, 1996), 5–20, and Catherine Bousquet-Bressolier, "L' œil du cartographe ou réflexions sur un monde vu de près." In *L'œil du cartographe et la représentation géographique du Moyen Âge à nos*

charting, miniaturists have the possibility of developing their drawings in the form of sumptuous decorative compositions or city topographies, and that way they act as painters that use a specific pictorial language. The *portolan style* is distinctively used on city miniatures. That is the point where the topographer-chorographer acts as painter. This aesthetic language isolates the object from the total, attributing a central position to it and, as with the art of painting, it is quite abstract. The morphology of landscape geometry (*ratio geometrica*), the perspective (*ratio perspectiva*), the liquid and movable sea mass, the mountain profile, the flora and fauna of each culture are quite distinct.[52] The illustrated landscape is described on a geometric background, as if it was a painting. The picture has architectural elements combining realism and symbolism. Color is indicative of masses, which are naturally illustrated. Color in geographical maps is a valuable accessory, while in topographical maps it becomes an indispensable element.[53] Limited expressiveness is typical of a gray printed map. Through their decorative skills, miniaturists aim to reach an unexpected pleasant result that will be appreciated by those who ordered or shall receive the work.[54]

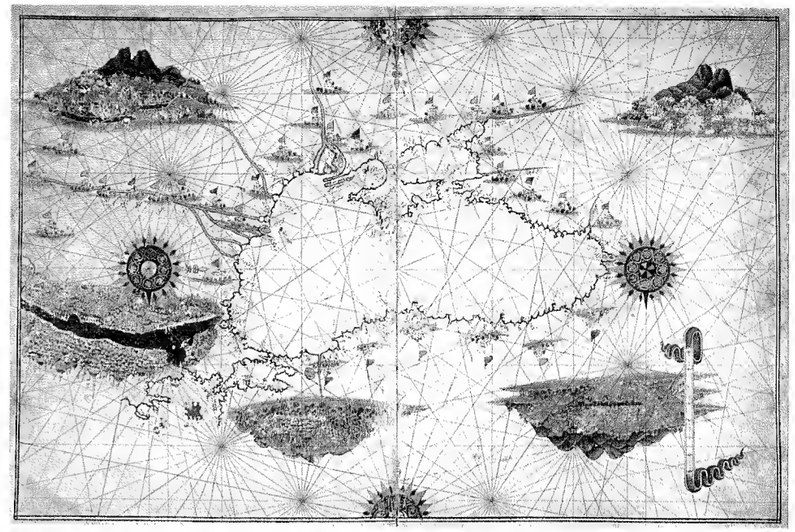
Ottoman nautical charting follows the European cartography model. Besides, the cartographical background, as the fruit of an experimental science, comes from Central Western Mediterranean. Ottoman nautical charts differ from European ones in two respects: place names and all inscriptions are written in the Arabic alphabet and the Ottoman language, and the decorative elements, the aesthetic part of the map, are influenced from the Islamic art of depiction.

jours, ed. C. Bousquet-Bressolier, (Paris: CTHS, 1995), 10–4. It could be said that Matrākçı Naṣūḥ served Ottoman topography and Pīrī Re'īs Ottoman geography.

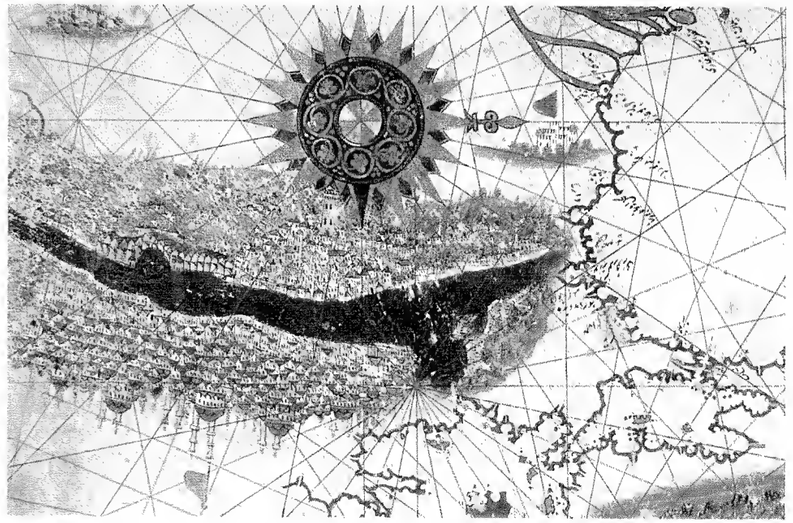
[52] Lucia Nuti, "Alle origini del Grand Tour: immagini e cultura della città italiana negli atlanti e cosmografie del secolo XVI." *Storia Urbana* 27 (1984): 3–35.

[53] Ulla Ehrensvärd, "Color in Cartography: a historical survey." In *Art & Cartography: Six Historical Essays*, ed. D. Woodward, (Chicago: Chicago University Press, 1987), 123–46.

[54] Lucia Nuti, "Le langage de la peinture dans la cartographie topographique." In *L'œil du cartographe et la représentation géographique du Moyen Âge à nos jours*, ed. C. Bousquet-Bressolier, (Paris: CTHS, 1995), 53–70.



Black Sea. Anonymous portolan atlas called "Walters *Deniz Atlası*." Considered ca. 1560–70. Walters Art Gallery, Baltimore (MS. W. 660, ff. 8b–9a).



Topographical map-miniature of İstanbul. Detail of the Black Sea chart of the Anonymous portolan atlas called "Walters *Deniz Atlası*." Considered ca. 1560–70. Walters Art Gallery, Baltimore (MS. W. 660, f. 9a).

Hazine

> And this book is most necessary, it is better to be in the Treasury. Correct and bring it, make no excuse, so that we submit it to the Royal World.[55]

By these words İbrahim Paşa (1495–1536), the Lawgiver's second Grand Vizier (1523–36), exhorted Pīrī Re'īs to offer an elaborated copy of his work *Kitab-ı Bahriye* to the Sultan's Treasure (*ḫazīne-i hümāyūn*), which was the State Treasury. There, apart from golden coins, precious stones and metals, they used to keep precious and rare objects as well as presents[56] offered to the Sultan by people at his service,[57] and by foreigner sovereigns. *Hazine* was the place where all works of art and scientific achievements could be admired, studied and kept throughout the years.

As to cartographic products, it is known that since the Conqueror's era they were kept in the libraries and the treasury of the palace. Even today many nautical and topographic maps once kept in *hazine* are preserved in the Library of Topkapı.[58]The Conqueror was a monarch with Renaissance interests, similar to those of European monarchs. He tried to blow a western wind in the Islamic arts of his era.

[55] "Ve hem işbu kitāb ġāyet gerekdür, ḫazāyinde bulunmaḳ yigrekdür./Taṣḥīḥ idüb getür ḳılma behāne, ki teslīm idevüz şāhī cihāne." See Pīrī Re'īs, *Kitab-ı Bahriye* (Süleymaniye Library, MS Aya Sofya 2612, f. 427a).

[56] Nautical charts as special presents are discussed in Hellen Wallis, "Sixteenth-Century Maritime Manuscript Atlases for Special Presentation." In *Images of the World, The Atlas through History*, eds. John A. Wolter and Ronald E. Grim, (Washington, D.C.: Library of Congress, 1997), 3–29.

[57] Rıfkı Melûl Meriç, "Türk sanatı tarihi vesikaları: bayramlarda padişahlara hediye edilen sanat eserleri ve karşılıkları." *Türk Sanʿatı Tarihi: Araştırma ve İncelemeleri* 1 (1963): 764–86.

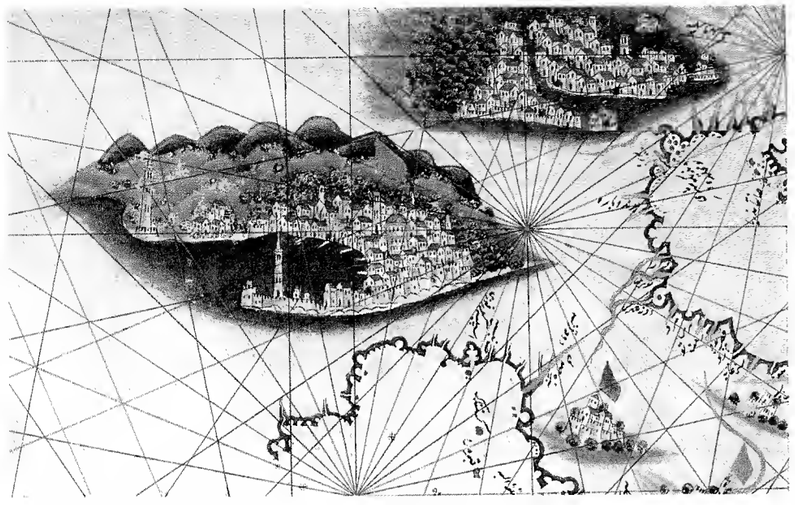
[58] Together with their classification number they have the indication *Hazine*. The most recent and comprehensive map catalog of Topkapı is Thomas D. Goodrich, "Old Maps in the Library of Topkapi Palace in Istanbul." *Imago Mundi* 45 (1993): 120–33. See, also, İbrahim Hakkı Konyalı, *Topkapı Sarayında deri üzerine yapılmış eski haritalar* (İstanbul: Zaman Kitaphanesi, 1936). Only a few European maps in the Topkapı are studied. See Rodolfo Gallo, "A fifteenth century military map of the Venecian territory of Terraferma." *Imago Mundi* 12 (1955): 55–7; Mareel Destombes, "Fragments of two medieval world maps at the Topkapu Saray Library." *Imago Mundi* 12 (1955): 150–2, and M. Emiliani-Salinari, "An atlas of the 15th century preserved in the library of the former Serail in Constantinople." *Imago Mundi* 8 (1951): 100–2. For remains from the Byzantine Palace Library and non-Islamic items in general, see Adolf Deissmann, *Forschungen und Funde im Serai, mit einem Verzeichnis der nichtislamischen Handschriften im Topkapu Serai zu Istanbul* (Berlin: Walter de Gruyter, 1933).

On the other hand, Süleyman the Lawgiver had the good fortune to be the powerful monarch of a state that enjoyed great prosperity. The power of the mighty empire found a point of reference in his person and moved forward towards the development of a distinctive civilization, the Ottoman. The Lawgiver was at the head of the empire during an extremely multidimensional productive period and accepted the products of its civilization. In his palace,[59] there were many different cultural elements like that of *Kitab-ı Bahriye*. After the conquest of Buda in 1526, Süleyman himself visited the library and the collection (*Wunderkammer*) that the Hungarian king Matthias Corvinus (Hunyadi) owned. He felt personally the atmosphere of these Renaissance collections and transferred part of it in İstanbul enriching that way his own palace.[60] A second wave of influence from the West had come to the Ottoman world after that of the Conqueror.

In the second half of the 17th century, Ottoman hydrography and cartography mark a recovery. It was already mentioned that during the reign of Meḥemmed IV (1648–87) Pīrī Re'īs's work was enriched and reproduced, while Evliyā Çelebi refers to numerous active cartographic workshops in Galata. At the same time, another important scholar, Katīb Çelebi, brings the European cartographic science to the East, translating Mercator's atlas into the Ottoman language. Thanks to his cartographic works *Cihānnümā* (Panorama of the World) and *Levāmiʿü'n-nūr fī ẓulmat-i Aṭlas Minor* (Rays of Light in the Darkness of Atlas Minor) Ottoman Islamic cartography becomes totally dependent on European productions, as Katīb Çelebi was the first Ottoman who, relying on European sources, offered an accurate and modern depiction of the world. On the 14th August 1668 the Dutch Ambassador Justinus Coljerö offered

[59] For Süleyman's hazine see Esin Atıl, *The Age of Sultan Süleyman the Magnificent*. Exhibition catalog, (Washington, D.C., and New York: National Gallery of Art & Harry N. Abrams, 1987), 113–75, and J. M. Rogers and R.M. Ward, *Süleyman the Magnificent*. Exhibition catalog, (London: British Museum, 1988), 28–35. German edition, *Schätze aus dem Topkapi Serail—Das Zeitalter Süleymans des Prächtigen*, (Berlin: Staatliche Museen Preußiseher Kulturbesitz & Dietrieh Reimer Verlag, 1988), 50–7.

[60] For Matthias Corvinus and his library see Csaba Csapodi and Klára Csapodiné Gárdonyi, *Bibliotheca Corviniana. Die Bibliothek des Königs Matthias Corvinus von Ungarn* (Budapest: Magyar Helikon & Corvina, 1969). Also, *Matthias Corvinus und die Renaissance in Ungarn, 1458–1541*. Catalog of the exhibition held at Schloß Schallaburg (Wien: Amt der Niederösterreichisehen Landesregierung, 1982). For corvinian items in the Sultan's treasury see János Csonvosi, "A Konstantinapolyból érkezett Korvinak bibliográfiai ismertetése." [Bibliographical report on the Corvinian manuscripts from Constantinople] *Magyar Könyvszemle* 2 (1877): 157–218; and Franz Babinger, *Mehmed the Conqueror and his time* (Princeton: Princeton University Press, 1978), 500–1.



Miniatures of Genoa and Veniee. Detail of the Central Mediterranean chart of the Anonymous portolan atlas ealled "Walters *Deniz Atlası*." Considered ea. 1560–70. Walters Art Gallery, Baltimore (MS. W. 660, f. 7a).

Atlas Maior[61] by Janszoon Blaeu to the Sultan. The Sultan asked Ebū Bekir bin Behrām ed-Dimişkī to translate it into Ottoman. Both works are in the Topkapı collection.[62]

The French traveler J.B. Tavernier visited the Treasure at the time. He was one of the few foreigners who had access to it. In his description he referred to books in various European languages, to celestial and terrestrial globes, and geographical maps probably produced by a Turkish corsair after observations on the spot during his trip. Tavernier believed that these maps had been offered as a gift to the Sultan. Finally, he noted that dust had covered the rich carpets already described, as well as the books. These latter seemed to be covered by the mist of an old victory against Christians. They were considered as monuments of this victory

[61] Janszoon Blaeu, *Atlas Maior sive Cosmographia Blauiana qua solum, salum, coelum, accuratissime describuntur*, 11 vols. (Amsterdam: Labore & Sumptibus, 1662).

[62] See *XIV–XVIII yüzyıl portolan ve deniz haritaları, İstanbul Topkapı Müzesi ve Venedik Correr Müzesi koleksiyonlarından/Portolani e carte nautiche XIV-XVIII secolo dalle collezioni del Museo Correr Venezia, Museo del Topkapi-Istanbul.* (İstanbul: Istituto Italiano di Cultura di Istanbul, 1994), 146–55.

rather than tools in use.[63] It seems that the maps that Tavernier found in *hazine* were not related to the modern cartographic works, all these sumptuous and accurate atlases. It is likely that they were not creations by Katīb Çelebi or Ebū Bekir, but depictions that revealed the gathering of the geographical knowledge of the previous century in the Ottoman Empire. Despite the gleam of its power (occupation of Candia, Crete in 1669) the empire seemed to be more productive in learned and aesthetic cartography rather than in a cartography used as a military tool in order to survey the lands to be conquered. Mehemmed IV preferred hunting, feasts, and the sweet serenity of the palace in Edirne.[64] In his *hazine* many were the presents that arrived, all extremely sumptuous and precious. The maps he received were elegant samples of Islamic aesthetics, ornaments rather than technological products endowed only with scientific accuracy. Mehemmed IV did not get Pīrī Re'īs's *Kitab-ı Bahriye*, but one and a half century after it he was offered *Deñiz Kitābı* by Seyyid Nūḥ, decorated with golden rivers and nice colored islands whose origin goes back to the hydrographical knowledge of the early 16th century. *Hazine* was very rich but its gleam was hidden under layers of dust. What was called decline of the Ottoman Empire should be seen in relation to the transition from the Mediterranean World towards the World of Great Oceans and New Lands. Cartographic centers had moved northern in Europe. The wind that deposited all that dust in *hazine*, deposited dust in the Venetian libraries and collections, too. The center of cartographic activity had changed place.

[63] "Et le dessus de l' échafout est plein de livres Latins, François, Italiens, Alemans, Anglois, et en d'autres Langues de nostre Europe. Il y en a pour la navigation, et ils sont accompagnez des deux Globes celeste et terrestre, et de quelques Cartes Geographiques dessignées sur du velin; ce qui fait juger que tout cela a esté pris sur mer par quelque Corsaire Ture, et envoyé cu present au Grand Seigneur. Mais la poussiere que l'on n'a pas soin d'ôter a entiérement gâté et la tapisserie et les livres, qui ne servent la que de monument de quelque victoire remportée sur les Chrestiens.» See J.B. Tavernier, *Recueil de plusieurs relations et traitez singuliers & curieux de J.B.Tavernier ... avec la Relation de l'interieur du Serrail du Grand Seigneur, contenant plusieurs singularitez qui jusqu'icy n'ont point esté mises en lumiere*, (Paris: s.n., 1692), 474.

[64] See Nurhan Atasoy and Filiz Çağman, *Turkish Miniature Painting* (İstanbul: R.C.D. Cultural Institute, 1974), 71–2.